ST. JOSEPH'S EVENING COLLEGE (AUTONOMOUS)

DEPARTMENT OF COMPUTER APPLICATIONS

TEACHING PLAN

BCA III Semester (June, 2018 to September, 2018)

SUBJECT: SOFTWARE ENGINEERING

Objective of the subject: Software engineering is a field of engineering, for designing and writing programs for computers or other electronic devices.

Name of the Faculty: Ms. Megha S R

Time/Hours required – 60 hrs

Sl. No.	Module and Topics	No. of Hours.	Teaching methods	Evaluation of Learning process
UNIT 1	**Introduction:** Software Products and Software process, Process models: Waterfall modal, Evolutionary Development, Bohemia's Spiral model, Overview of risk management, Process Visibility, Professional responsibility	**4** (2) (2)	Lecture/ACTIVITY	Exercise problems and Assignment problems
UNIT 2	**Computer based System Engineering:** Systems and their environment, System Procurement, System Engineering Process, System architecture modeling, Human Factors, System reliability Engineering.	(3) (1) (1) (1)	Lecture/ACTIVITY	Exercise problems and Assignment problem

UNIT 3	**Requirements and Specification:** The requirement Engineering Process, The Software requirement document, Validation of Evolution of requirements, Viewpoint – oriented & method based analysis, System contexts, Social 7 organizational factors, Data flow, Semantic, Object, models , Requirement definition, Requirement Specification, Non functional requirement.	**8** **(2)** **(2)** **(2)** **(2)**	Lecture/ACTIVITY	Exercise problems and Assignment problems
UNIT 4	**Software prototyping:** Prototyping in software process, Prototyping techniques, User interfaces prototyping	**2** **(1)** **(1)**	Lecture/ACTIVITY	Exercise problems and Assignment problems
UNIT 5	**Software Design:** Design Process, Design Strategies, Design Quality System Structuring, Control models Modular decomposition and Domain Specific architecture.	**5** **(2)** **(1)** **(2)**	Lecture/ACTIVITY	Exercise problems and Assignment problems
UNIT 6	**Object Oriented and function oriented design:** Objects, object Classes and inheritance, Object identification, an object oriented design example, Concurrent Objects, Data flow design, Structural decomposition, Detailed Design, A Comparison of design Strategies	**5** **(2)** **(1)** **(2)**	Lecture/ACTIVITY	Exercise problems and Assignment problems
UNIT 7	**User interface design:** Design Principles, User System interaction, Information Presentation, User	**3** **(1)** **(2)**	Lecture/ACTIVITY	Exercise problems and Assignment problems

	Guidance, Interface Evaluation.			
UNIT 8	**Software Reliability and reusability:** Software reliability metrics, Software reliability Specification, Statistical testing, Reliability Growth modeling, Fault avoidance & tolerance, Exception handling & defensive programming, Software development with reuse, Software development for reuse, Generator based reuse, Application System Portability	**8** **(2)** **(2)** **(2)** **(2)**	Lecture/ACTIVITY	Exercise problems and Assignment problems
UNIT 9	**Software Verification and Validation:** The testing Process, Test Planning & Strategies, Black Box, Structural, interface testing, Program inspections, Mathematically based verification, Static analysis tools, Clean room software development.	**8** **(2)** **(2)** **(3)**	Lecture/ACTIVITY	Exercise problems and Assignment problems
UNIT 10	**Management Issues:** Project management, Quality management, Software cost estimation, Software maintenance.	**4** **(2)** **(2)**	Lecture/ACTIVITY	Exercise problems and Assignment problems

BOOKS:

1. Ian Summerville, Software Engineering, 6th Edition, Pearson Publication Ltd. 2001
2. Roger Pressman, Software Engineering – A practitioner's approach (McGraw Hill).
3. Carlo Ghejgietal, Fundamentals of Software- Engineering, Pearson Education.
4. Panakaj Jalote, An Integrated Approach to Software Engineering – Narosa